

## NEW DESCRIPTIONS

### A NEW SPECIES OF *PUERARIA* DC. (FABACEAE) FROM GARHWAL HIMALAYA, U.P., INDIA<sup>1</sup>

(With fifteen text-figures)

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During the course of botanical explorations in the remote localities of the Garhwal Himalaya we came across some interesting specimens of the genus *Pueraria* DC. The specimens were matched with *Pueraria ferruginea* Kurz. However, thorough perusal of literature and examination of the specimens at the Botanical Survey of India, Northern Circle (BSD) and Forest Research Institute (DD), Dehradun, indicated that it is a distinct species, and is described as a new species.

#### *Pueraria garhwalensis* sp. nov.

Haec species *Pueraria ferrugineae* Kurz affinis, sed differt plantae habitu annuo, foliis glandulari-pubescentibus, in superficiebus ambabus, stipulis majoribus, calycis lobis inaequalibus, quam tubo brevioribus, corollae ala carinaque membranacea, staminibus diadelphis, stamine uno vexillari connato ad basin columnae, antheris inaequalibus; leguminibus adpresse glandulari-pubescentibus, cum bracteis persistentibus.

Herbae volubiles, ca 1 m altae, cum pilis adpressis glandularibus, rami orientes ex axillis foliorum. Folia pinnatim trifoliata, ca 13 cm longa (petiolo incluso), foliola 3 - 6 x 1.6 - 5.2 cm, foliola terminalia late ovata, aequilateralia, acuminata, chartacea, utrimque glandulari-pubescentia; nervi alterni, in 2-3 paribus; stipulae magnae, lanceolatae, 7 mm longae. Inflorescentiae racemosae, axillares vel terminales, fasciculatae, binatae vel ternatae. Flores emergentes cum foliis. Flores ca 7 mm longi cum bracteis persistentibus; bractee lanceolatae, ca 6 mm longae, utrimque glandulari-pilosae. Pedicellus

ca 4 mm longus. Calyx campanulatus, ca 5 mm longus, tubus dentibus longior, dentes 5-lobati, inaequales, 2 breviores, 3 longiores. Corolla cyaneo-purpurea; vexillum obovatum, 7 mm longum, alae breviter angustae, membranaceae, ca 7 mm longae; carina breviter membranacea, ca 7 mm longa. Stamina diadelphe (9+1), stamen uno vexillare connatum ad basin columnae; antherae inaequales. Carpellum ca 7 mm longum; ovarium minute pilosum, stipitatum, stylus brevis, curvatus, stigma capitatum. Legumina linearia, adpresse glandulari-pilosa, ca 3.0 x 0.3 cm, cum bracteis persistentibus et staminibus. Semina 1 - 4 in legumine, ca 2 mm longa lataque.

*Typus*: Agunda, Tehri District, Garhwal Himalayas, Uttar Pradesh, 1300 m, 25.9.1993, L.R. Dangwal, 12,363 A, (Holotypus - GUH); Ibid. L.R. Dangwal, 12,363 B (Isotypus-GUH).

#### *Pueraria garhwalensis* sp. nov.

(Fig. A - J2)

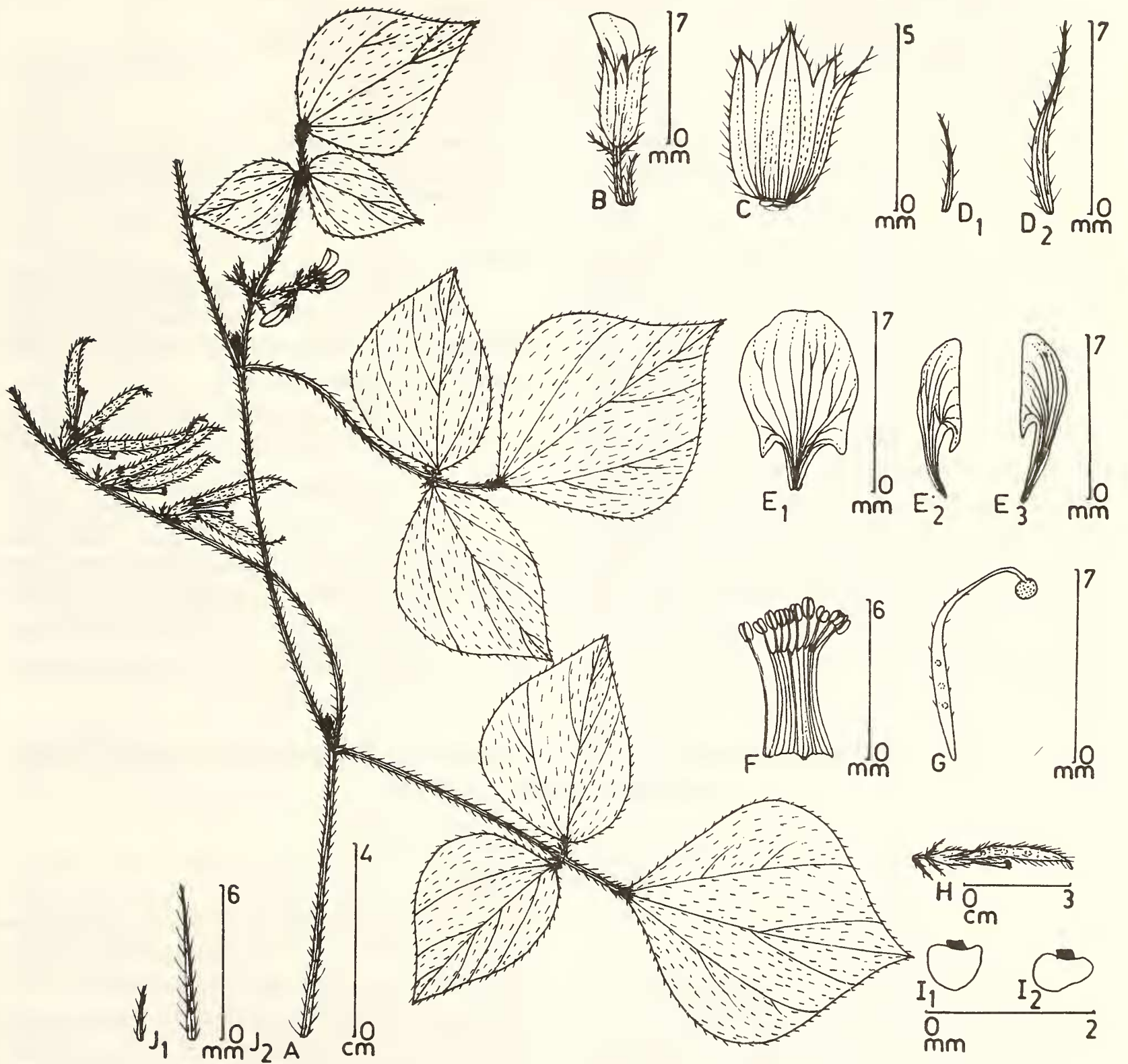
The new species is closely allied to *Pueraria ferruginea* Kurz from which it differs in the following characters.

This taxon is allied to *Pueraria ferruginea* Kurz, however, it differs by its annual habit, leaves having glandular pubescence on both the surfaces; stipules large; calyx lobes unequal, shorter than tube; corolla wing and keel feathery; stamens diadelphous, vexillary one fused at the base of column; anthers unequal; pods glandular-adpressed hairy, with persistent bracts.

Annual, twining herbs, c 1 m tall, with glandular adpressed hairs, branches arising from the axils of the leaves. Leaves pinnately trifoliolate, c 13 cm long (including petiole); leaflets 3 - 6 x 1.6 - 5.2 cm, the terminal leaflets broadly ovate, equal sided, acuminate, chartaceous, furnished with glandular hairs on both the sides; nerves alternate, 2 - 3 pairs; stipules large,

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Figs A - J<sub>2</sub> *Pueraria garhwalensis* sp. nov.: A. Flowering and fruiting branch; B. Flower; C. Calyx; D<sub>1</sub> - D<sub>2</sub>. Bracts; E<sub>1</sub> - E<sub>2</sub> - E<sub>3</sub>. Corolla; F. Stamens; G. Carpel; H. Pod with persistent bracts and stamens; I<sub>1</sub> - I<sub>2</sub>. Seeds; J<sub>1</sub> - J<sub>2</sub>. Stipules.

## KEY FOR THE TWO SPECIES

<i>Pueraria garhwalensis</i> sp. nov.	<i>Pueraria ferruginea</i> Kurz
1. Annual glandular-hairy herbs. 2. Stipules large, <i>ca</i> 7 mm long. 3. Leaflets sparsely hairy. 4. Bracts persistent. 5. Calyx large, <i>ca</i> 5 mm 6. Stamens diadelphous (9+1); anthers not uniform. 7. Pods narrow 3 mm broad, glandular hairy with persistent bracts and stamens.	Perennial hirsute herbs. Stipules small, <i>ca</i> 3 mm long Leaflets densely hairy. Bracts caducous. Calyx small, <i>ca</i> 2.5 mm long. Stamens monoadelphous; anthers uniform. Pods broader, 5-6 mm, sparsely hairy, without persistent bracts and stamens.

lanceolate, 7 mm long. Inflorescence axillary or terminal, fasciculate, 2- 3 nate, racemes. Flowers emerge with leaves; flowers *c* 7 mm long, with persistent bracts; bracts lanceolate, *c* 6 mm long, glandular hairy on both the sides. Pedicel *c* 4 mm long. Calyx campanulate, *c* 5 mm long, tube longer than teeth; teeth 5-lobed, unequal, 2 smaller, 3 larger. Corolla bluish-purple; vexillum ovate, 7 mm long; wing shortly narrow, feathery, *c* 7 mm long; keel shortly feathery, *c* 7 mm long. Stamens diadelphous (9+1), vexillary one fused at the base of column; anthers unequal. Carpel *c* 7 mm long; ovary minutely hairy, stipitate; style short, curved; stigma capitate. Pods linear, adpressed glandular hairy, *ca* 3.0 x 0.3 cm, with persistent bracts and stamens. Seeds 1 - 4 in a pod, *c* 2 mm long as well

as broad.

**Flowering and Fruiting:** August - November.

**Ecology:** In moist and shady places along roadsides on slopes, associated with *Carrisa opaca*, *Berberis* and *Rubus* species.

**Etymology:** The species is named after the locality of Garhwal Himalaya, in Uttar Pradesh, India.

## ACKNOWLEDGEMENT

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## 2. *GARRA SURENDRANATHANII* - A NEW CYPRINID FISH FROM THE SOUTHERN WESTERN GHATS, INDIA<sup>1</sup>

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(With one text-figure)

## INTRODUCTION

Nineteen species of *Garra* have been described from the Indian subcontinent. Of these, five are distributed in the state of Kerala. These are *Garra mullya* (Sykes), *G. gotyla stenorhynchus* (Jerdon), *G. McClellandi* (Jerdon), *G. hughi* Silas and *G. menoni* Remadevi and Indra (Jayaram, 1981; Talwar and Jhingran, 1991). *G. menoni* (Remadevi and

Indra, 1986) described from the Kunthi river of Silent Valley, Kerala was later synonymised with *G. mullya* by Talwar and Jhingran (1991) without any discussion. But Menon (pers. comm.) considers it as a valid species. A new species of *Garra*, collected recently from three river systems of Kerala originating from Western Ghats is described

## STUDY AREAS

(i) Chalakkudy river flows through the central portion of Kerala. The collection location of the stream (76° 41' E and 10° 22' N) is narrow (15m),

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